

Introducing

Auto-Disable Syringes and Sharps Disposal Containers with DMPA

As part of USAID's commitment to ensuring quality in service delivery programs, the agency will soon begin supplying auto-disable (AD) syringes and sharps disposal containers with shipments of the injectable contraceptive DMPA (depot medroxyprogesterone acetate) or Depo-Provera®¹. These two technologies will help to improve injection safety for family planning clients, health workers, and communities by reducing re-use of needles and preventing needlestick injuries. This document is designed to help introduce AD syringes and sharps containers into family planning programs that will receive USAID-supplied DMPA. It provides guidance to USAID Cooperating Agencies on points to consider when introducing these technologies, and key training messages to help health workers use the new syringes and sharps containers safely and effectively. Guidelines for disposal of contaminated waste and used syringes are also provided.

path

Program for Appropriate Technology in Health

HealthTech: Technologies for Health
A Cooperative Agreement with USAID

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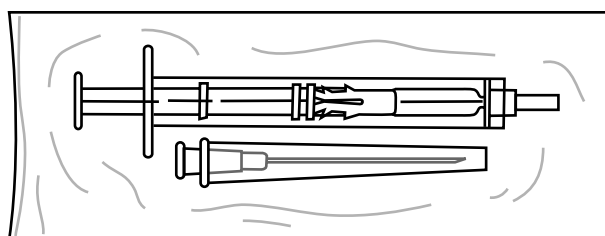
¹ Depo-Provera is a registered trademark of Pharmacia & Upjohn.

Description of SoloShot FX and the Sharps Disposal Containers

AD syringes have been distributed by UNICEF for several years, and WHO recommends that all immunizations be administered with AD syringes. These syringes are a key element in improving injection safety and are widely used in campaign and routine immunization settings. Although many different brands of AD syringes exist, USAID Family Planning programs will provide the SoloShot FX^{TM2} syringe.

SoloShot FX Syringe

The SoloShot FX syringe is a single-use, disposable, AD syringe with a metal clip that locks the plunger after a single use. This syringe is packaged with a detachable needle in a sterile paper package. The detachable needle cannot be attached to any other type of syringes.



The SoloShot FX syringe has two primary benefits over most standard syringes:

- it is designed to prevent re-use, and
- it pollutes less when burned, since it does not contain a black rubber piston seal.

AD syringes are designed for use with little or no instruction. However, as with all new devices, practice with the new syringes may help health workers feel more confident before using the syringe with a client and may prevent doses of DMPA from being wasted. Most health workers will require practice in filling a few AD syringes with DMPA from single-dose vials to achieve optimum results.

Different brands of AD syringes operate differently. Illustrated instructions for the SoloShot FX syringe are included in Attachment A. These instructions can be adapted and incorporated into existing training materials or distributed separately.

Sharps Containers

Sharps containers are puncture proof, impermeable containers for the disposal of used syringes and needles. When used consistently and correctly, these can help prevent needlestick injuries to workers and the community. The containers will be shipped flat in the same box as the DMPA and will need to be assembled on site. Assembly instructions will be printed on the containers. Key messages for using the sharps containers safely and effectively are included in Attachment B.

Appropriate disposal of used syringes, needles, and other contaminated materials is a concern for all health programs. Recommended guidelines for safe disposal of these materials is included in Attachment C. The bundled shipping configuration is shown in Attachment D.

² SoloShot FX is a trademark of BD.

Considerations When Introducing AD Syringes and Sharps Containers

USAID Cooperating Agencies responsible for training and service delivery will integrate AD syringes and sharps containers into existing family planning services based on their organizational culture and training philosophy. The following points are key elements for successful introduction of these technologies.

- **Motivate staff:** Explain that these new syringes and needles prevent their re-use and help ensure that the syringe is sterile by providing each device in its original wrapper. The new sharps containers are being introduced to protect clients, health care workers, and the community from contaminated sharps.
- **Allow practice with the new syringes:** Give opportunities for all health workers, both experienced and inexperienced, to try a few syringes before they use them on clients. AD syringes require a slightly different technique.
- **Plan for the distribution of new sharps containers and disposal of used, full containers:** Each site will need to determine where the sharps containers will be located, who will assemble the new containers, who will pick up the used containers, who will destroy them, and how they will be destroyed.
- **Seek feedback and offer suggestions soon after introduction:** Discuss how the new AD syringes affect service delivery, so minor problems do not escalate. Use this opportunity to inquire constructively about other related service-delivery issues.
- **Improve awareness of injection safety:** Use this opportunity to convey the dangers of unsafe practices, strengthen health worker understanding of safety issues, and make safe injections a priority.

Key Points

Discuss contingency plans and expected practices.

For example, what should they do if:

- The AD syringe locks before a full dose is drawn up?
- All AD syringes are used, but vials of DMPA remain?

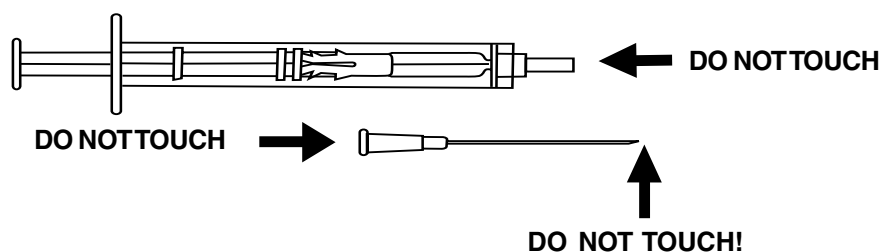
How is Using This AD Syringe Different from Using a Disposable Syringe?

In most respects, using the SoloShot FX syringe will be similar to delivering DMPA with a standard syringe; however, important changes in procedure are noted below:

- **Do not inject air into the vial before withdrawing a dose.** The plunger on the SoloShot FX syringe can go back and forth only once. If a health worker tries to inject air into the vial, the plunger will lock, rendering the syringe useless.
- **Keep the needle in the DMPA when drawing up the dose; avoid getting air into the barrel.** It is not possible to move the plunger back and forth to eliminate air or draw up more DMPA. Workers may unintentionally give too small a dose of DMPA to clients if too much air gets into the barrel. The following instructions (see Attachment A) show a method of filling an AD syringe by keeping the needle in the lowest corner of the vial. Although this method differs from standard practices, workers may find it more effective in this situation.
- **What about aspiration?** The locking mechanism in this AD syringe decreases the distance the health care worker can retract the plunger to aspirate for blood. Blood return into the tip of the syringe will still indicate if the needle has entered a vein or artery, but the plunger will travel only a very short distance.

What are Some of the Injection Practices that Remain the Same When Using SoloShot FX to Deliver DMPA?

- **Give the right medication in the right dose to the right client at the right time, using the right route of administration.** As always, read the label to ensure that the vial is the correct medication for this particular client. This is increasingly important as the availability of different injectable contraceptives increases.³
- **Do not touch the needle, the syringe hub, the vial septum, or the injection site.** Touching the needle, the syringe hub, or the rubber septum of the vial can increase microbial contamination of the injection. Workers should discard syringes if they touch the needle or syringe hub and start over with a new syringe package. They should not use their finger to guide the needle into the site, nor place a finger on the injection site to stop the bleeding. This can increase the transmission of blood-borne pathogens between clients or from the client to the health worker.



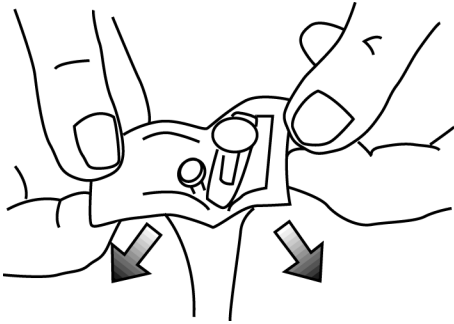
- **Gently shake the DMPA vial to thoroughly mix the contents before withdrawing the dose.**
- **Use a new needle and syringe for every injection.** If supplies of AD syringes are depleted, but doses of DMPA are still available, the doses should be given only if sterile needles and syringes can be used.
- **Give the full dose of DMPA, or discard the syringe and the partially used vial.** It is important to give the full dose of DMPA. Supervisors should assure healthcare workers that it is acceptable to discard a partial dose and start over if the syringe locks and the dose cannot be adjusted. Punitive policies discouraging appropriate wastage should be revised.

³ Injectable contraceptives have different dosing schedules and are not interchangeable. These include Progestagen-only (DMPA, NET-EN) and combined injectable contraceptives (Cycloprovera/Cyclofem®, Mesigyna/Norigymon). Patients may not know which injectable contraceptive they usually receive. Clinics should establish systems to track individual client's regimens.

Using SoloShot FX With Single-Dose DMPA Vials

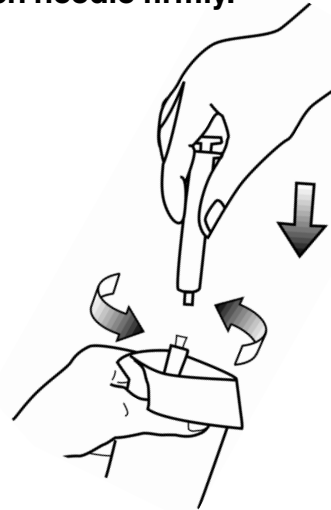
1

Open sterile wrapper.



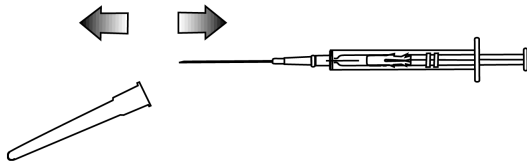
2

Attach needle firmly.



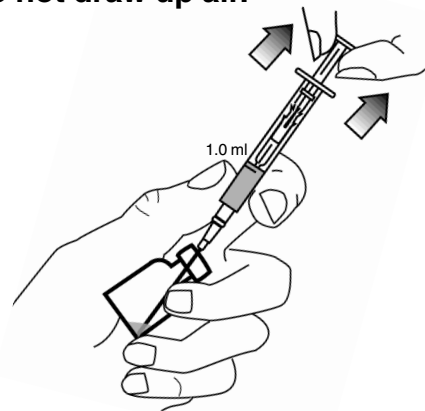
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Remove needle shield.



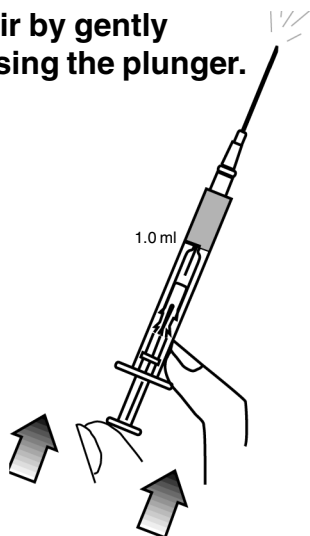
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Insert needle into lowest corner of vial and draw up complete contents. Do not draw up air.



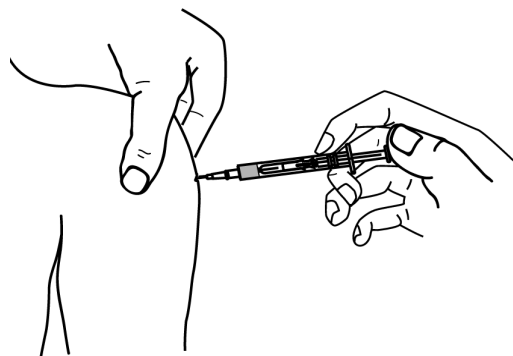
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Expel air by gently depressing the plunger.



6

Inject full dose intramuscularly (IM) into the deltoid muscle of the upper arm or other injection site.



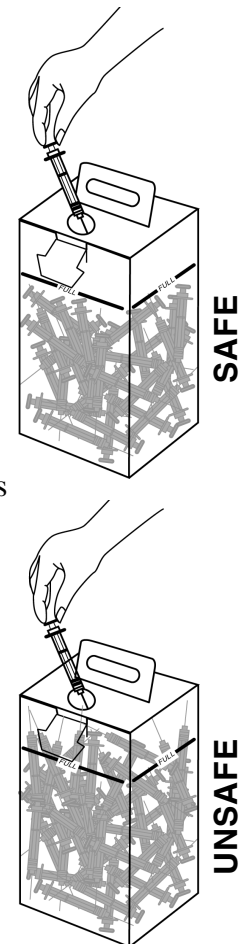
Attachment B

Using a Sharps Container Effectively

Sharps containers help prevent needlestick injuries if they are used consistently and correctly. This section reviews the key messages to emphasize in training and supervision.

Key Disposal Messages for Health Workers

- **Do not recap syringes before disposal.** Most needlesticks happen when workers recap used needles.
- **Place the syringe and needle in the sharps container immediately after use.** Do not manually remove the needle from the syringe. Do not bend or cut the needle after the injection. The more syringes and needles are handled, the greater the risk of needlesticks.
- **Place the sharps container where the injections are given.** Many needlestick injuries happen after the injection, but before the syringe is placed in a sharps container. Eliminate the need to carry used needles and syringes before disposal by placing containers within reach of every injector's work station.
- **Do not overfill the sharps containers.** Before containers are completely full, remove them, close them, and seal them shut. This prevents needlesticks that occur when workers stuff needles and syringes into full sharps containers and prick themselves with the needles already inside the containers. Designate persons to replace sharps containers with new containers when the maximum fill line is reached.
- **Sharps containers should be filled only once and discarded immediately.** This prevents needlesticks and exposure to blood and body fluids, which could occur if dumping and re-using containers.



Key Points

Discuss contingency plans and expected practices.

For example, what should they do if:

- They run out of sharps containers?
- The sharps container is full by the middle of the day, and they need a new one?

Ask staff to track issues that arise during the first month of using sharps containers and meet again to discuss how they handled them. It might be useful to brainstorm additional ways to handle these and other relevant service-delivery issues which may arise in the future.

Attachment C

Safe Disposal Messages

Destroying syringes: no easy options, no perfect solutions

Unfortunately, there are no easy, nonpolluting methods that destroy syringes or needles.

Decontamination removes blood-borne pathogens. However, once the material is buried, it will be contaminated by other germs. People who step on needles will remain at risk for injury and other infections, such as tetanus. Two other options for destroying syringes and needles after disposal are incineration and burning.

Incineration

Incineration can completely destroy needles and syringes by burning at temperatures above 800° Celsius. The high temperatures kill microorganisms and reduce the volume of waste to a minimum. Properly functioning incinerators ensure the most complete destruction of syringes and needles, and produce less air pollution than burning at lower temperatures. Some hospitals have on-site incineration, but since they require special facilities and personnel, hospitals sometimes use incinerators at other facilities such as cement factories.

Burning

“Burning” refers to the combustion of syringes at lower temperatures that may or may not completely destroy them. Adding kerosene and igniting medical waste is an example of burning. Burning is commonly done in an open area, metal drum, or protected hearth.

Open burning

Open burning of contaminated sharps in a pit is the least preferred, most toxic option. Open burning is not recommended because it scatters waste. If waste is placed in an open pit, the pit should not be so deep that people have to crawl down into the pit to start the fire. They could be pricked by the remaining stubs of needles. However, if open burning must be done, health workers should:

- fence off and clear the area in which open burning takes place;
- warn people to stay away and avoid smoke and fumes from the fire;
- carry the waste to the site just before burning;
- burn the waste in small, designated areas;
- prevent animals or people from accessing the site;
- make sure the fire is completely out before leaving the site;
- prevent waste from scattering and littering the surrounding areas; and
- bury the remains.

Burning in metal drum or protected hearth

Burning in a metal drum or protected hearth is another way to dispose of used injection equipment and contaminated needles. Sharps containers can be placed in a metal drum. Fuel can be poured in, the waste ignited, and the materials burned until the fire goes out on its own. The remains should then be buried.

Burying debris after burning

The remains of injection equipment and sharps containers should be buried after burning. Bury debris in a pit at least one meter deep in a controlled area for burying waste, or a similar location where people do not have access and will not dig to plant crops or establish latrines. Some people recommend covering the site with concrete when the pit is full to prevent digging at the site in the future.

Attachment D

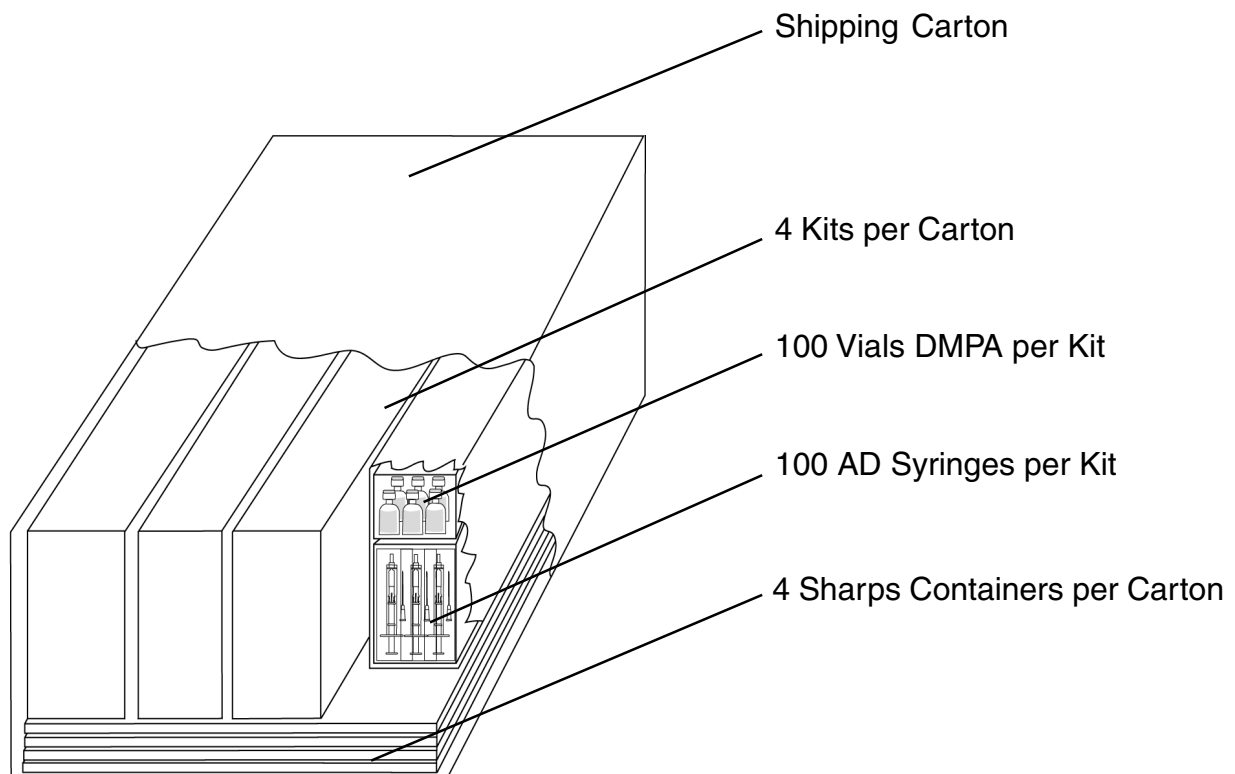
Shipping Specifications

How will this change the shipments of DMPA sent by USAID?

By mid-2001, DMPA will be shipped in cartons that contain the following:

- 400 doses of DMPA,
- 400 SoloShot FX syringes, and
- 4 sharps containers.

The DMPA and syringes will be bundled in 4 kits, each containing 100 single-dose vials of DMPA and 100 syringes.



References

Prüss A, Townend WK. WHO. Management of Wastes from Health Care Activities: Teacher's Guide. World Health Organization, Geneva; 1998.

Prüss A, Giroult E, Rushbrook P. WHO. Safe Management of Wastes from Health Care Activities. World Health Organization, Geneva; 1998.

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Introducing Auto-Disable Syringes with DMPA (depot medroxyprogesterone acetate)

Use a new needle and syringe for every injection.

Do not inject air into the vial before withdrawing a dose.

The plunger on the AD syringe can go back and forth only once. If you try to inject air into the vial, the plunger will lock, rendering the syringe useless.

Shake DMPA vial thoroughly before withdrawing the dose.

Keep the needle tip in the DMPA suspension when drawing up the dose; avoid getting air into the barrel.

It is not possible to move the plunger (the piece of the syringe you push downward) back and forth to eliminate air and draw up DMPA. You may find it easier to do this by placing the vial on a table, slightly incline the vial top to the right. Insert the needle and bring the tip of the needle to the lowest part of the bottom of the vial.

Draw out all of the DMPA from the vial. Discard partial doses if the syringe locks and the dose cannot be adjusted.

- ? Pay more attention to emptying the full content of vial than to watching the syringe and stopping at the 1.0 ml mark.
- ? Remove the needle from the vial. To remove the air bubbles, hold the syringe upright and tap the barrel. Do not touch the needle or needle hub. Then carefully push the plunger to the dose mark (1.0 ml).
- ? Administer the injection intramuscularly.
- ? Depress the plunger completely to deliver the dose. The plunger will automatically lock to prevent the syringe from being reused.

Aspiration is possible.

The locking mechanism in this syringe decreases the distance you can retract the plunger to aspirate for blood. Although the plunger will only travel a short distance, it is still possible to aspirate.

**Place the syringe and needle immediately into a sharps container.
Do not recap! Do not separate the needle from the syringe!**